

**Notice of Allowability**

Application No.

10/776,341

Examiner

Zia R. Hashmi

Applicant(s)

OHMUKAI ET AL.

Art Unit

2881



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 8/15/2005.
2. ☒ The allowed claim(s) is/are 1-13.
3. ☒ The drawings filed on 12 February 2004 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |                                                                                                                     |                                                                                        |
|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)                                                    | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|                                                                                                                     | 9. <input type="checkbox"/> Other _____.                                               |

**DETAILED ACTION**

***Allowable Subject Matter***

1. An "Amendment" was received on August 15, 2005, in response to Office Action of May 18, 2005. Claims 5 and 7 have been amended, as indicated.
2. Claims 1-13 are allowed.
3. The following is an examiner's statement of reasons for allowance:
4. With respect to independent claims 1 and 8, prior art fails to disclose an atomic lithography apparatus for depositing atoms included in an atomic beam on a substrate to manufacture atomic structure comprising: an atomic oven having a pin hole; a collimator having a pin hole for collimating an atom gas effused from the atomic oven to generate an atomic beam; lasers for irradiating laser beams on the atomic beam to control the divergence of the atomic beam; lasers for forming an optical standing wave at a part of a space in which the atomic beam is propagated to control the propagation direction of the atomic beam; an electro-optic element for controlling the phases of the optical standing wave for controlling the propagation direction of the atomic beam to control the propagation direction of the atomic beam; an electro-optic element drive device for controlling a voltage applied to the electro-optic element to control a refraction index of the electro-optic element; and a control device for controlling the electro-optic element drive device.
5. With respect to independent claim 5, prior art fails to disclose a method of manufacturing an atomic structure on a substrate comprising: an atomic beam generation step for generating an atomic beam; and a step for controlling an optical

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standing wave obtained by a laser by using an electro-optic effect to control the propagation direction of the atomic beams wherein the propagation direction of the atomic beam is controlled by changing the phase of the optical standing wave.

Claims 2-4, 6-7, and 9-13 are allowed by virtue of their dependence on the independent claims 1, 5, and 8.

### **Conclusion**

5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments of Statement of Reasons for Allowance".

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact Electronic Business Center (EBC) at 866-217-9197 (toll-free).


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zia Hashmi whose telephone number is (571) 272-2473. The examiner can normally be reached between 8.30 AM- 5 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571) 272-2477.

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Zia Hashmi

October 4, 2005

  
NIKITA WELLS  
PRIMARY EXAMINER 10/11/05